

*Observations of the Transit of Mercury, November 7 and 8, 1881,
made at the Melbourne Observatory.**(Communicated by R. L. J. Ellery, Esq., Government Astronomer.)**Notes by Mr. Ellery.*

Morning fine, but sky covered with cirrus, which did not hide the Sun, but rendered precise observations of details difficult; the thickness of film variable. Used 8-inch telescope, with Herschelian prism and power of 125, with yellow smoke shade. Edge of Sun commenced to boil violently a few minutes just prior to time of first contact, and was so disturbed as to make the time of external contact so uncertain that it was not estimated. Internal contact very good at $11^{\text{h}} 8^{\text{m}} 0^{\text{s}}.1$ ($19^{\text{h}} 58^{\text{m}} 44^{\text{s}}.06$). As the planet passed on to the Sun's disk it appeared clearly attached by a broad smoky band to the edge, which faded away flickeringly to a mere filament, till at $11^{\text{h}} 8^{\text{m}} 23^{\text{s}}.8$ ($19^{\text{h}} 59^{\text{m}} 7^{\text{s}}.7$), the planet became quite free suddenly. At egress the clouds had almost entirely cleared away, and left the Sun quite clear for the latter phases. At $1^{\text{h}} 15^{\text{m}} 6^{\text{s}}$ a thin flickering line, not at all persistent, was seen to connect planet and limb intermittently. This quite disappeared before internal contact at $1^{\text{h}} 15^{\text{m}} 33^{\text{s}}.41$, which was sharp and well defined, with no distortion of Sun's limb. External contact at egress, $1^{\text{h}} 17^{\text{m}} 12^{\text{s}}.9$. The external contact was beautifully clear, and nothing remarkable was observed; not the slightest trace of any projection of the Sun's limb around the planet, nor any appearance of planet outside the Sun. Whenever *Mercury* was seen on the Sun's disk clear of clouds a white spot was visible on the planet's centre, ill defined, and impressing me with its being some optical or delusory effect.

d	h	m	s	
7	19	58	44.06	Internal contact at Ingress.
		59	7.7	Planet suddenly free of filament.
8	1	15	6	Thin flickering line connected planet and limb.
		15	33.41	Internal contact at Egress.
		17	12.9	External ,,
Melbourne Mean Time.				

Notes by Mr. White.

Observed with the North Equatoreal of four and a half inches aperture. At ingress a positive eyepiece with power 82 was used, the shade being a light yellow. At egress a Herschelian prism was employed with a negative eyepiece magnifying 84 times, the shade being a wedge of neutral-tinted glass. The corrected times are as follows:—

d	h	m	s	
7	19	57	11.7	External contact at Ingress.
		58	47.2	Internal „
8	1	15	30.1	Internal contact at Egress.
		17	10.5	External „
Melbourne Mean Time.				

The limb of the Sun became violently agitated in the neighbourhood of the planet about a minute before the time of external contact at ingress, and continued disturbed during the whole of this phase. When about two-thirds of the planet had entered on the Sun's disk, it assumed a pear shape, the narrow part being towards the Sun's edge. The time given as internal contact is when a thread of light was first seen between the two limbs. At egress the definition was exceedingly good; the contacts were formed without distortion or clinging.

Notes by Mr. Moerlin.

Instrument used, 4½-inch Equatoreal by Cooke, Herschelian prisms, negative eyepiece, magnifying power 60; the shade was of a yellow-green colour. The following are the observed phases:—

d	h	m	s	
7	19	57	23.0	External contact at Ingress
		59	43.0	Internal „
8	1	15	34.5	Internal contact at Egress.
		17	6.5	External „
Melbourne Mean Time.				

The time of external contact at ingress very satisfactory, but the internal contact very likely too late, as there was a cloudiness between the edge of the Sun and the planet before a complete separation took place. The contacts at egress I consider good, no ligament or head having been seen, but a clean and comparatively sharp contact.

Notes by Mr. Turner.

Instrument used, 12-inch Newtonian Reflector, full aperture, Herschelian positive diagonal eyepiece, power 71, with neutral shade.

Phenomenon of ingress not observed, sky being very hazy. During the entire transit the sky was more or less hazy, Mercury appearing as a small round spot, for the most part somewhat ill-defined.

At egress it cleared up considerably, and definition was all that could be desired—sharp, clear, and steady.

At 1^h 15^m 21^s, Melbourne mean time, a ragged filament was thrown out between the planet and the Sun's limb; this lasted about two seconds, the filament then assuming a solid form.

At 1^h 16^m 4^s the planet was slightly past internal contact; exact internal contact could not be determined.

External contact took place at 1^h 17^m 7^s; this was a most reliable observation, the Sun's limb being sharp and steady.